~~04364~~ Dup # not valid per Qian Zhang

Inspection Report For Well: UT20736 - 06701

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466
This form was printed on 7/27/2012

INSPECTOR(S): Lead: Breffle, Don Date: 8/29/2012
Others: Zhang, Qian Time: 10:42 (am) / pm

OPERATOR (only if different): Chad Stevenson Rodrigo Jurado

REPRESENTATIVE(S): _____

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name:	Ute Tribal 18-03		
Well Type:	Enhanced Recovery (2R)		
Operating Status:	AC (ACTIVE) as of 3/10/2006		
Oil Field:	Antelope Creek (Duchesne)		
Location:	NENW S18 T5S R3W		
Indian Country:	X, Uintah and Ouray		
Last Inspection:	7/14/2010	***Allowable Inj Pressure:***	1675 /
Last MIT:	Pass 2/7/2011	***Annulus Pressure From Last MIT:***	1100

BLACK = POSSIBLE VIOLATION GREY = DATA MISSING

INSPECTION TYPE: (Select One)
- ☐ Construction / Workover
- ☐ Plugging
- ☐ Post-Closure
- ☐ Response to Complaint
- ☒ Routine
- ☐ Witness MIT
- ☐ Other

IOIS Entered
Date 9/13/12
Initials DB

OBSERVED VALUES:

Tubing Gauge:	☒ Yes ☐ No	Pressure: U: 1567 / L: ____ psig Gauge Range: SCADA psig		Gauge Owner:	☐ EPA ☒ Operator
Annulus Gauge:	☒ Yes ☐ No	Pressure: 0 psig Gauge Range: opened annulus psig		Gauge Owner:	☐ EPA ☒ Operator
Bradenhead Gauge:	☐ Yes ☐ No	Pressure: ____ psig Gauge Range: ____ psig		Gauge Owner:	☐ EPA ☐ Operator
Pump Gauge:	☐ Yes ☐ No	Pressure: ____ psig Gauge Range: ____ psig		Gauge Owner:	☐ EPA ☐ Operator
Operating Status: (Select One)	☒ Active ☐ Being Reworked	☐ Not Injecting ☐ Production	☐ Plugged and Abandoned ☐ Under Construction		

UI2 Entered
Date 9/20/12
Initial DB

See page 2 for photos, comments, and site conditions.

GREEN BLUE
1

Inspection Report For Well: UT20736 - 06701 (PAGE 2)

PHOTOGRAPHS: ☐ Yes ☑ No List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s): _____ _____ _____

☐ Data Entry ☐ Compliance Staff ☐ Hard Copy Filing

NOTICE OF INSPECTION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 8/28/12
Hour: 8:00 AM

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Firm Name: Petroglyph Operating Co

Firm Address: 4116 W 3000 S Loka La
Roosevelt, UT

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Don Bretzke
Inspector's Name & Title (Print)
Qian Zhang

Inspector's Signature

EPA R8 3560-1 (8-89)

Original - Regional Office Copy
Yellow Copy - Operator Copy

OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

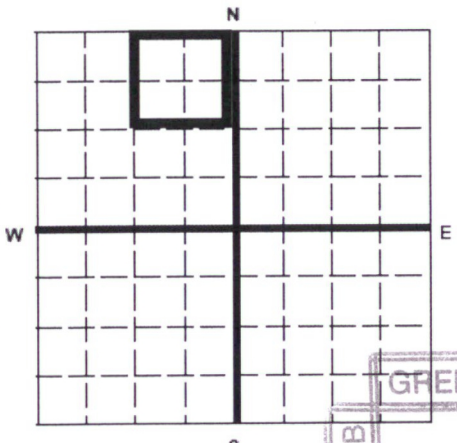
EPA

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-06701

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NW 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 614 ft. frm (N/S) N Line of quarter section
and 1983 ft. from (E/W) W Line of quarter section.

U2 Entered
Date 4/4/17
Initial JB

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-03

GREEN BLUE CBL
TAB 2

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	16	1612	1612	534		0	0
February	16	1632	1650	395		0	0
March	16	1626	1632	328		0	0
April	16	1576	1592	265		0	0
May	16	1595	1605	439		0	0
June	16	1619	1638	445		0	0
July	16	1630	1632	466		0	0
August	16	1626	1639	493		0	0
September	16	1607	1619	455		0	0
October	16	1617	1648	532		0	0
November	16	1629	1645	344		0	0
December	16	1627	1632	401		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		03/21/2017

EPA Form 7520-11 (Rev. 12-11)

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 18-03 INJ, DUCHESNE**	Lab Tech:	**Kaitlyn Natelli**
Sample Point:	**Well Head**		
Sample Date:	**1/3/2017**		
Sample ID:	**WA-344973**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/9/2017
System Temperature 1 (°F):	60
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	180
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0027
pH:	8.25
Calculated TDS (mg/L):	7799.09
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	10.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	2640.21	Chloride (Cl):	3000.00
Potassium (K):	20.75	Sulfate (SO_4):	60.00
Magnesium (Mg):	17.91	Bicarbonate (HCO_3):	2000.00
Calcium (Ca):	27.99	Carbonate (CO_3):	
Strontium (Sr):	3.46	Hydroxide(HO):	
Barium (Ba):	8.40	Acetic Acid (CH_3COO)	
Iron (Fe):	4.39	Propionic Acid (C_2H_5COO)	
Zinc (Zn):	1.33	Butanoic Acid (C_3H_7COO)	
Lead (Pb):	0.00	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Ammonia NH_3:		Fluoride (F):	
Manganese (Mn):	0.08	Bromine (Br):	
Aluminum (Al):	0.00	Silica (SiO_2):	14.57
Lithium (Li):	3.44	Calcium Carbonate ($CaCO_3$):	
Boron (B):	3.53	Phosphates (PO_4):	7.72
Silicon (Si):	6.81	Oxygen (O_2):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	1.56	23.34	0.92	4.35	3.52	2.42	2.97	3.19	0.00	0.00	0.00	0.00	0.00	0.00	9.99	0.69
167.00	267.00	1.45	22.95	0.94	4.38	3.48	2.42	2.84	3.19	0.00	0.00	0.00	0.00	0.00	0.00	10.08	0.69
153.00	483.00	1.37	22.59	0.98	4.43	3.47	2.42	2.74	3.19	0.00	0.00	0.00	0.00	0.00	0.00	10.21	0.69
140.00	700.00	1.30	22.19	1.02	4.48	3.47	2.42	2.64	3.18	0.00	0.00	0.00	0.00	0.00	0.00	10.36	0.69
127.00	917.00	1.22	21.75	1.07	4.54	3.49	2.42	2.53	3.18	0.00	0.00	0.00	0.00	0.00	0.00	10.52	0.69
113.00	1133.00	1.16	21.26	1.14	4.61	3.52	2.42	2.43	3.18	0.00	0.00	0.00	0.00	0.00	0.00	10.70	0.69
100.00	1350.00	1.10	20.75	1.22	4.67	3.57	2.42	2.33	3.18	0.00	0.00	0.00	0.00	0.00	0.00	10.90	0.69
87.00	1567.00	1.04	20.22	1.32	4.74	3.63	2.42	2.22	3.17	0.00	0.00	0.00	0.00	0.00	0.00	11.12	0.69
73.00	1783.00	0.99	19.69	1.43	4.79	3.72	2.42	2.12	3.17	0.00	0.00	0.00	0.00	0.00	0.00	11.36	0.69
60.00	2000.00	0.95	19.19	1.55	4.85	3.82	2.42	2.03	3.16	0.00	0.00	0.00	0.00	0.00	0.00	11.63	0.69

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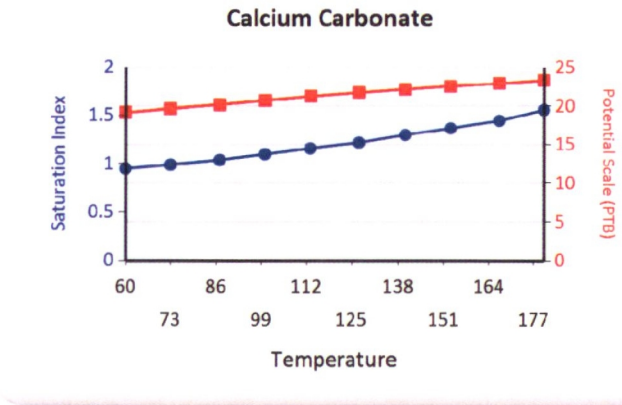
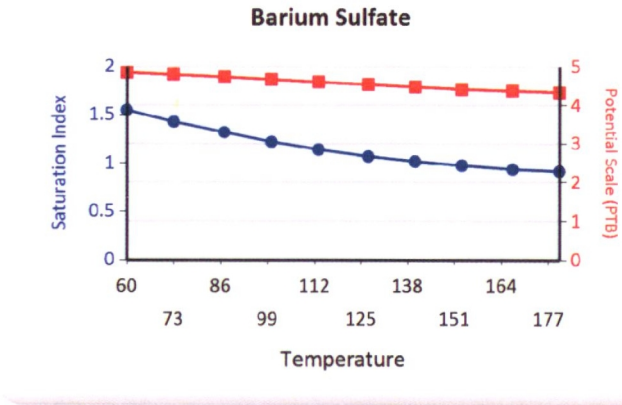
Water Analysis Report

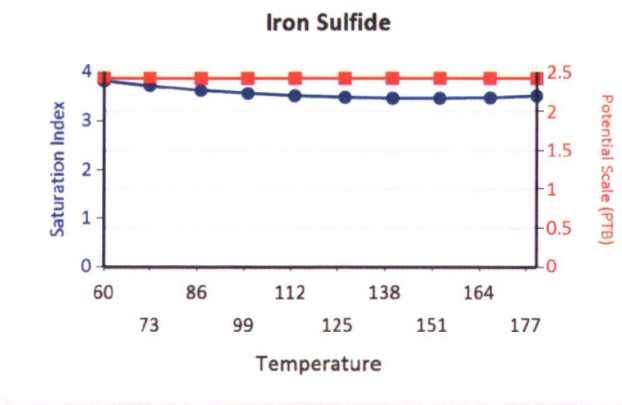
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	2.31	0.89	0.00	0.00	5.05	27.42	2.37	14.74	10.59	3.41
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14	0.89	0.00	0.00	4.27	23.70	1.90	12.19	9.97	3.41
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97	0.88	0.00	0.00	3.61	20.47	1.51	10.00	9.49	3.41
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.88	0.00	0.00	2.95	16.97	1.13	7.65	9.01	3.41
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	0.87	0.00	0.00	2.28	13.30	0.74	5.22	8.54	3.41
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	0.86	0.00	0.00	1.62	9.55	0.37	2.74	8.08	3.40
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.84	0.00	0.00	0.95	5.76	0.00	0.00	7.63	3.40
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	0.81	0.00	0.00	0.28	1.89	0.00	0.00	7.20	3.40
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.75	0.00	0.00	0.00	0.00	0.00	0.00	6.77	3.39
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.65	0.00	0.00	0.00	0.00	0.00	0.00	6.36	3.38

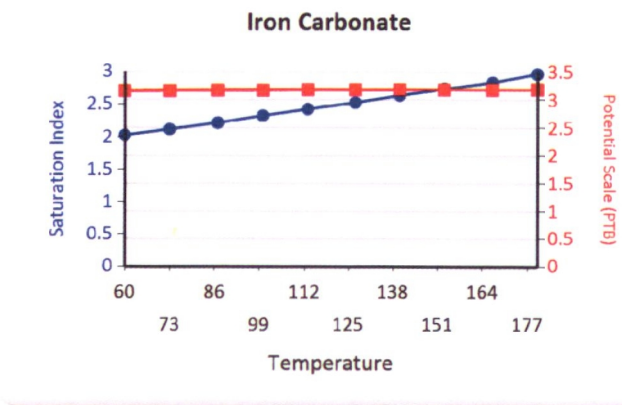
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Fe Silicate

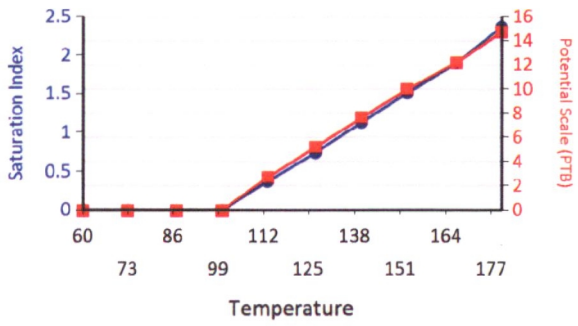




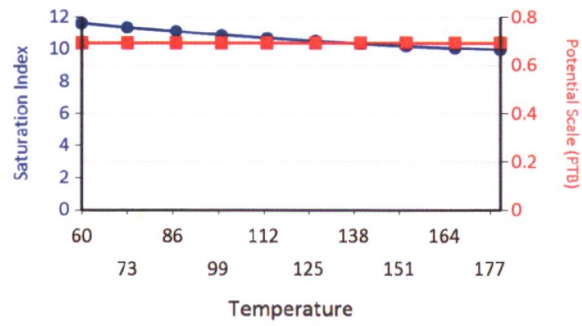




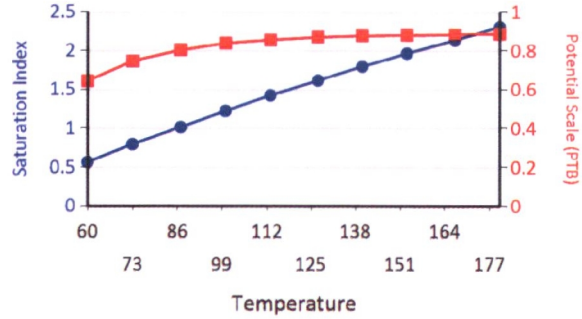
Ca Mg Silicate



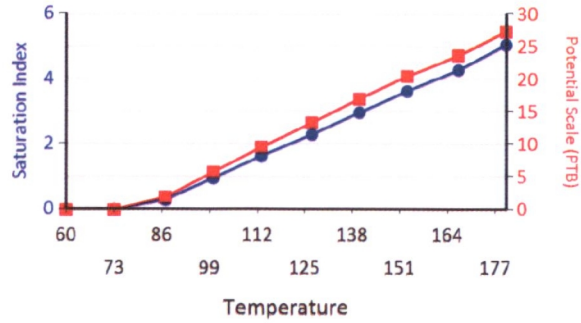
Zinc Sulfide



Zinc Carbonate



Mg Silicate



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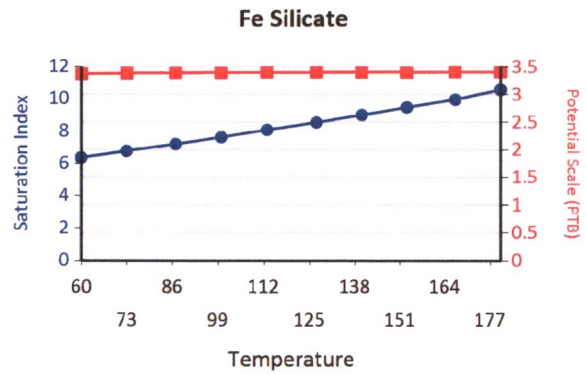


OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

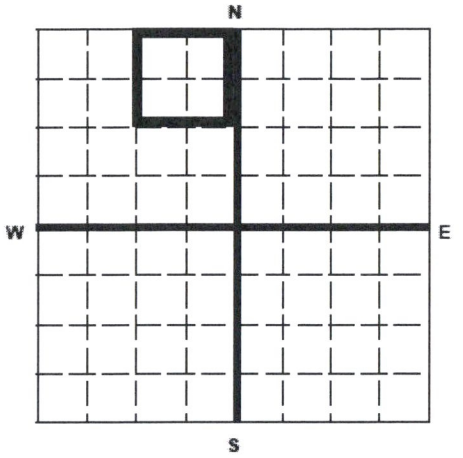
ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

06701

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-~~04434~~.04364

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NW 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 614 ft. frm (N/S) N Line of quarter section
and 1983 ft. from (E/W) W Line of quarter section.

U2 Entered
Date 3/1/16
Initial JS

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-03

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1601	1604	496		0	0
February	15	1619	1636	471		0	0
March	15	1611	1630	557		0	0
April	15	1594	1606	454		0	0
May	15	1614	1621	508		0	0
June	15	1613	1628	468		0	0
July	15	1627	1633	518		0	0
August	15	1612	1628	489		0	0
September	15	1588	1612	433		0	0
October	15	1625	1662	561		0	0
November	15	1607	1614	410		0	0
December	15	1604	1616	475		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		02/08/2016

EPA Form 7520-11 (Rev. 12-11)

GREEN BLUE CBI
TAB 2

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 18-03 INJ, DUCHESNE**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2016**		
Sample ID:	**WA-327559**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/14/2016
System Temperature 1 (°F):	60
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	180
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0018
pH:	7.90
Calculated TDS (mg/L):	6417.93
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	80.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	1988.26	Chloride (Cl):	2500.00
Potassium (K):	11.02	Sulfate (SO_4):	330.00
Magnesium (Mg):	64.27	Bicarbonate (HCO_3):	1342.00
Calcium (Ca):	139.85	Carbonate (CO_3):	
Strontium (Sr):	5.45	Acetic Acid (CH_3COO)	
Barium (Ba):	4.17	Propionic Acid (C_2H_5COO)	
Iron (Fe):	2.39	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	2.24	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.62	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.04	Silica (SiO_2):	27.62
Aluminum (Al):	0.02	Calcium Carbonate ($CaCO_3$):	
Lithium (Li):	1.28	Phosphates (PO_4):	4.98
Boron (B):	1.20	Oxygen (O_2):	
Silicon (Si):	12.91		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	1.83	105.28	1.33	2.37	0.00	0.00	2.24	1.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167.00	267.00	1.70	99.16	1.35	2.37	0.00	0.00	2.08	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	483.00	1.60	94.62	1.38	2.38	0.00	0.00	1.97	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	700.00	1.51	89.81	1.42	2.39	0.00	0.00	1.85	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127.00	917.00	1.43	84.84	1.48	2.40	0.00	0.00	1.73	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	1133.00	1.35	79.84	1.54	2.41	0.00	0.00	1.61	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	1.28	74.93	1.62	2.43	0.00	0.00	1.50	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	1.21	70.23	1.71	2.44	0.00	0.00	1.38	1.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	1.15	65.83	1.82	2.45	0.00	0.00	1.27	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	1.10	61.81	1.95	2.46	0.00	0.00	1.16	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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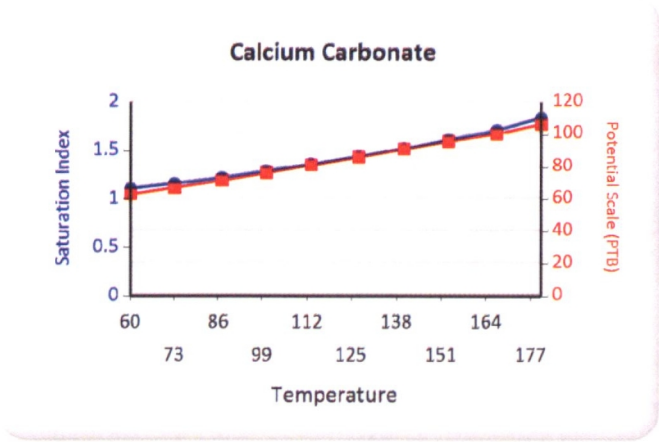
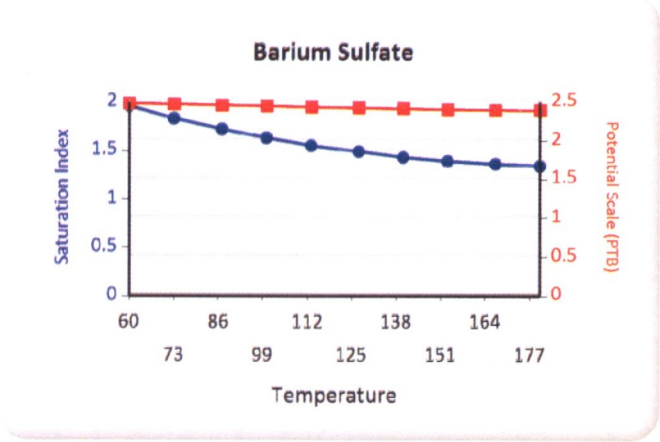
Water Analysis Report

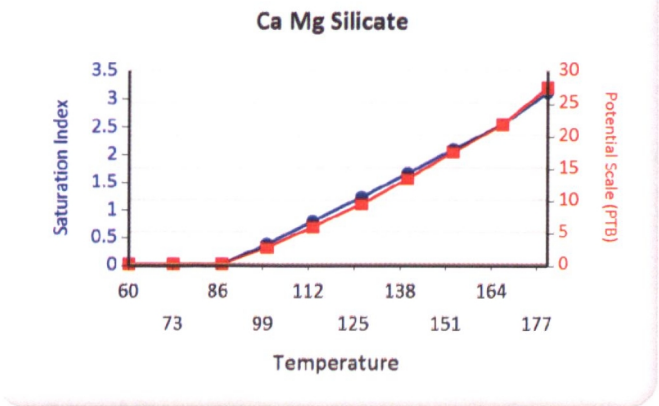
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14	1.49	0.00	0.00	5.64	53.27	3.11	27.30	8.63	1.86
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	1.49	0.00	0.00	4.70	41.81	2.53	21.67	7.85	1.85
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76	1.48	0.00	0.00	3.96	33.48	2.09	17.44	7.28	1.85
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	1.47	0.00	0.00	3.23	25.51	1.66	13.26	6.72	1.85
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38	1.44	0.00	0.00	2.49	18.26	1.22	9.33	6.17	1.84
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.40	0.00	0.00	1.75	11.88	0.79	5.76	5.63	1.83
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	1.34	0.00	0.00	1.01	6.37	0.37	2.58	5.10	1.81
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	1.22	0.00	0.00	0.27	1.64	0.00	0.00	4.58	1.79
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	1.02	0.00	0.00	0.00	0.00	0.00	0.00	4.07	1.76
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.66	0.00	0.00	0.00	0.00	0.00	0.00	3.58	1.71

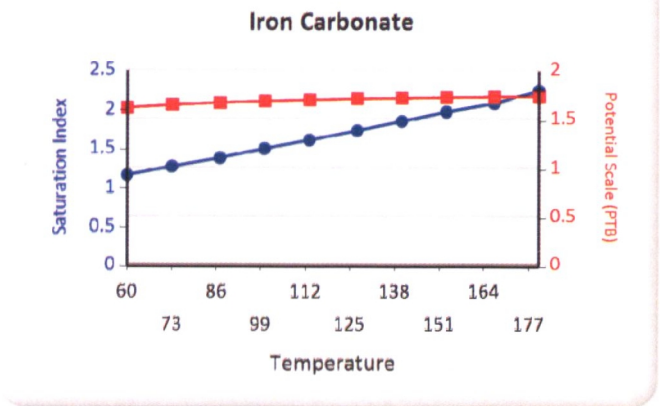
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Fe Silicate









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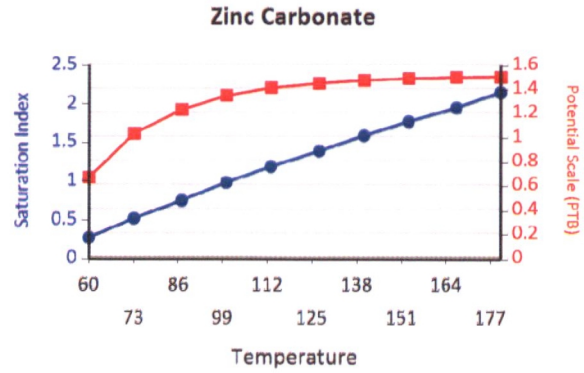
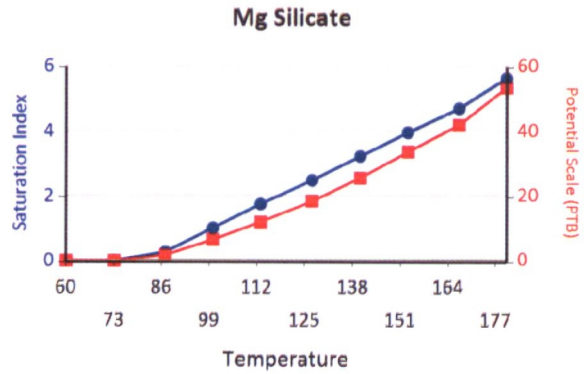
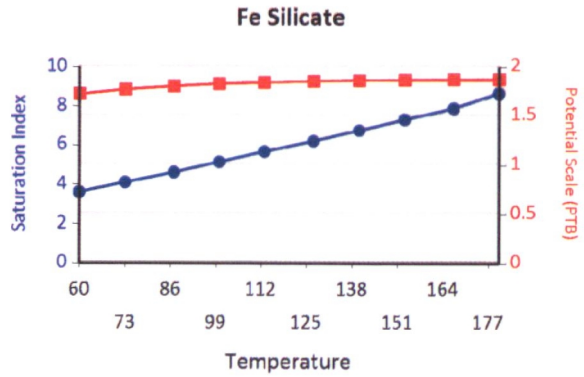






Mechanical Integrity Test
Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 2/7/16
Test conducted by: CHAD STEVENSON
Others present: _____

Well Name: 18-03 UT20736-06701 Type: ER SWD **Status:** AC TA UC
Field: ANTELOPE CREEK
Location: 18-03 Sec: ___ T ___ N / S R ___ E / W County: DUCHESNE State: UT
Operator: PETROGLYPH ENERGY
Last MIT: ___/___/___ **Maximum Allowable Pressure:** _____ PSIG

Regularly scheduled test? [X] Yes [ ] No
Initial test for permit? [ ] Yes [ ] No
Test after well rework? [ ] Yes [ ] No

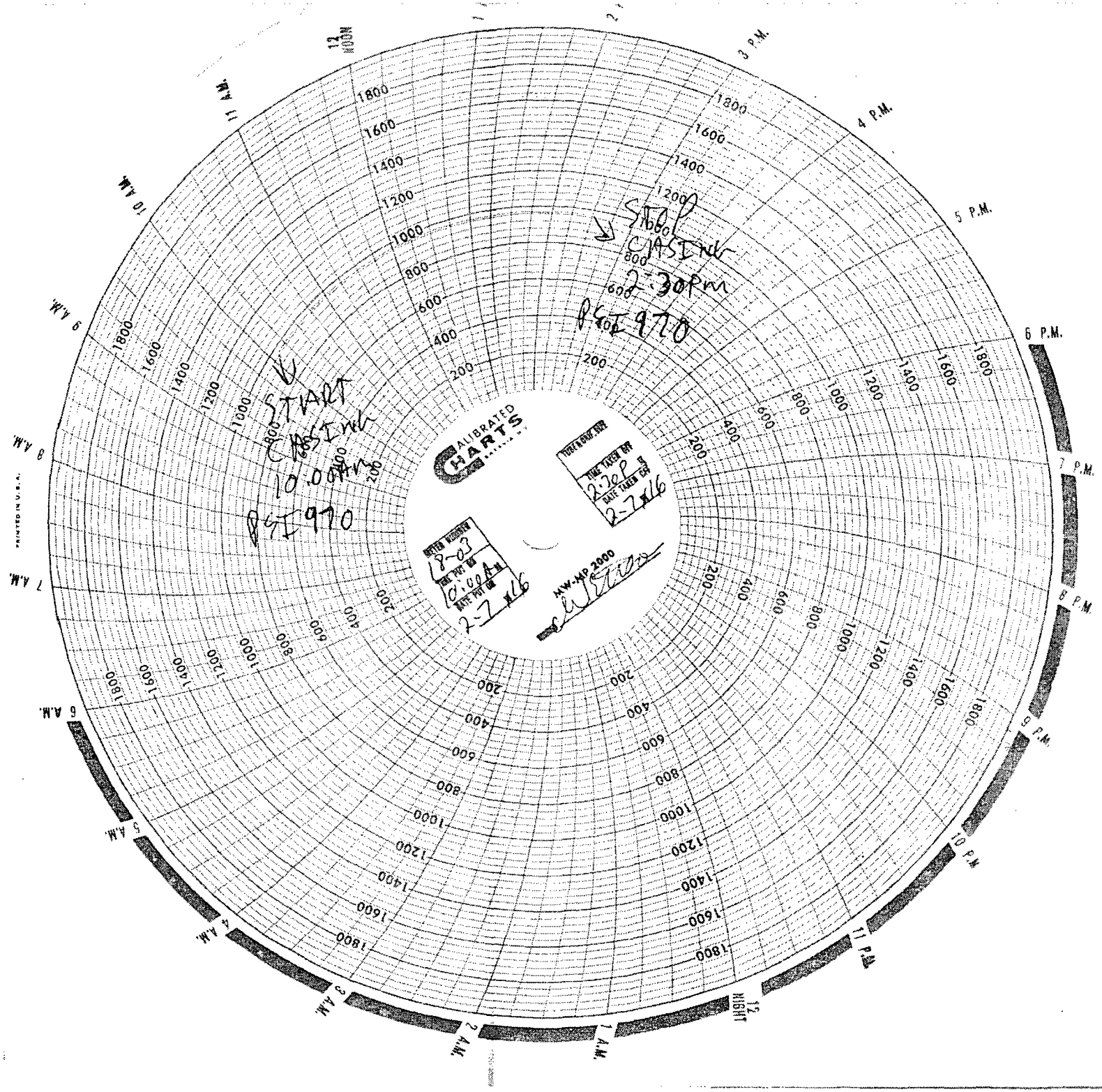
Well injecting during test? If Yes, rate: 18 **bpd**
Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING		**PRESSURE RECORD**	
Initial Pressure	1639 psig	psig	psig
End of test pressure	1639 psig	psig	psig
CASING / TUBING ANNULUS		**PRESSURE RECORD**	
0 minutes	970 psig	psig	psig
5 minutes	970 psig	psig	psig
10 minutes	970 psig	psig	psig
15 minutes	970 psig	psig	psig
20 minutes	970 psig	psig	psig
25 minutes	970 psig	psig	psig
30 minutes	970 psig	psig	psig
4 Hours ~~minutes~~	970 psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail

Does the annulus pressure build back up after the test ? **If Yes,** _____ **psig.**

GREEN | BLUE | OBT
2

U2 Entered
Date 4/29/16
Initial DB


CALIBRATED CHARTS
SYSTEM NUMBER 8-03
TIME PUT ON 10:00 AM
DATE PUT ON 2-7-16
TIME TAKEN OFF 2:30 P
DATE TAKEN OFF 2-7-16
MW-MP 2000
START CASING 10:00AM PST 970
STOP CASING 2:30PM PST 970
12 NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
12 MIDN
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
PRINTED IN U.S.A.

OMB No. 2040-0042 Approval Expires 12/31/2011

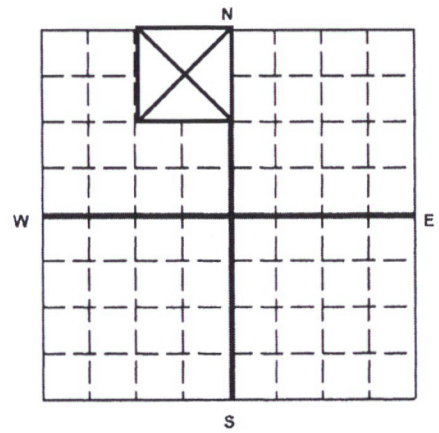
EPA

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-06701

Surface Location Description

___ 1/4 of ___ 1/4 of NE 1/4 of NW 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 614 ft. frm (N/S) N Line of quarter section and 1983 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-03

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1605	1617	498		0	0
February	14	1624	1627	507		0	0
March	14	1614	1633	463		0	0
April	14	1344	1648	804		0	0
May	14	1616	1630	870		0	0
June	14	1618	1647	676		0	0
July	14	1603	1622	601		0	0
August	14	1638	1643	658		0	0
September	14	1613	1619	549		0	0
October	14	1626	1632	604		0	0
November	14	1641	1646	569		0	0
December	14	1615	1625	436		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/10/2015

EPA Form 7520-11 (Rev. 12-08)

U2 Entered
Date 7/23/15
Initial CW

TAB	GREEN	BLUE	CBI
		2	

Multi-Chem Analytical Laboratory
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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 18-03 INJ, DUCHESNE**	Lab Tech:	**Gary Winegar**
Sample Point:	**WELLHEAD**		
Sample Date:	**1/7/2015**		
Sample ID:	**WA-297513**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/14/2015
System Temperature 1 (°F):	160
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	80
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.0014
pH:	7.70
Calculated TDS (mg/L):	6314.78
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	5.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	1744.96	Chloride (Cl):	3000.00
Potassium (K):	27.26	Sulfate (SO_4):	177.00
Magnesium (Mg):	43.13	Bicarbonate (HCO_3):	1220.00
Calcium (Ca):	69.96	Carbonate (CO_3):	
Strontium (Sr):	4.93	Acetic Acid (CH_3COO)	
Barium (Ba):	3.52	Propionic Acid (C_2H_5COO)	
Iron (Fe):	1.62	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.20	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.02	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.08	Silica (SiO_2):	22.10

Notes:
B=3.66 Al=.04 Li=1.04

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.91	39.22	1.63	2.05	2.45	0.89	1.14	1.09	0.00	0.00	0.00	0.00	0.00	0.00	9.70	0.11
88.00	157.00	0.87	37.18	1.54	2.04	2.32	0.89	1.13	1.09	0.00	0.00	0.00	0.00	0.00	0.00	9.46	0.11
97.00	300.00	0.90	38.34	1.46	2.02	2.28	0.89	1.19	1.10	0.00	0.00	0.00	0.00	0.00	0.00	9.32	0.11
106.00	443.00	0.93	39.56	1.39	2.01	2.24	0.89	1.25	1.11	0.00	0.00	0.00	0.00	0.00	0.00	9.18	0.11
115.00	585.00	0.96	40.83	1.33	2.00	2.22	0.89	1.31	1.12	0.00	0.00	0.00	0.00	0.00	0.00	9.06	0.11
124.00	728.00	1.00	42.13	1.27	1.98	2.20	0.89	1.37	1.13	0.00	0.00	0.00	0.00	0.00	0.00	8.94	0.11
133.00	871.00	1.04	43.44	1.22	1.97	2.19	0.89	1.43	1.13	0.00	0.00	0.00	0.00	0.00	0.00	8.84	0.11
142.00	1014.00	1.08	44.76	1.17	1.96	2.19	0.89	1.48	1.14	0.00	0.00	0.00	0.00	0.00	0.00	8.74	0.11
151.00	1157.00	1.12	46.06	1.13	1.94	2.19	0.89	1.54	1.14	0.00	0.00	0.00	0.00	0.00	0.00	8.65	0.11
160.00	1300.00	1.17	47.34	1.10	1.93	2.20	0.89	1.60	1.15	0.00	0.00	0.00	0.00	0.00	0.00	8.56	0.11

		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.97	0.01	0.00	0.00	0.00	0.00	2.65	1.07
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.62	0.01	0.00	0.00	0.00	0.00	2.49	1.04
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.37	0.01	0.00	0.00	0.00	0.00	2.79	1.09
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.14	0.01	0.00	0.00	0.00	0.00	3.10	1.13
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.91	0.01	0.00	0.00	0.00	0.00	3.43	1.16
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.03	9.71	0.01	0.14	0.95	0.00	0.00	3.77	1.18
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.06	9.51	0.01	0.63	3.98	0.00	0.00	4.11	1.20
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.07	9.33	0.01	1.12	7.14	0.00	0.00	4.47	1.21
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.09	9.16	0.01	1.62	10.36	0.16	1.06	4.83	1.22
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.10	9.00	0.01	2.11	13.55	0.44	2.80	5.20	1.23

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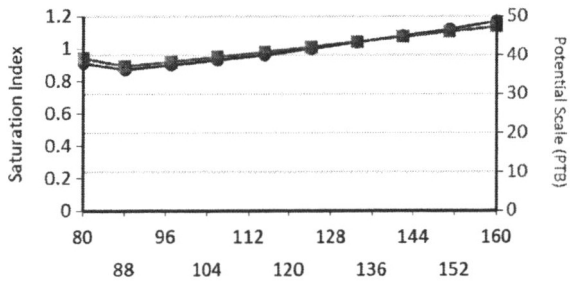
Water Analysis Report

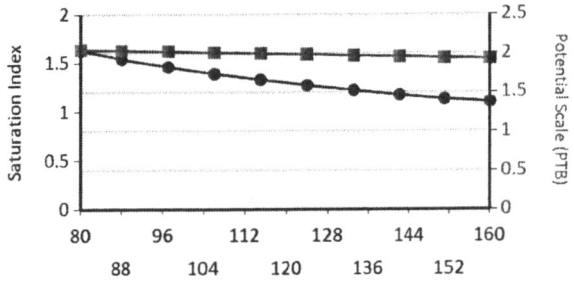
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Lead Sulfide Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

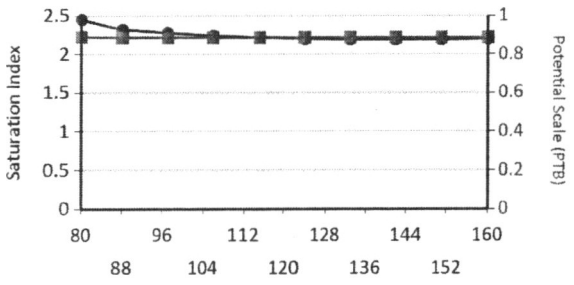
Calcium Carbonate



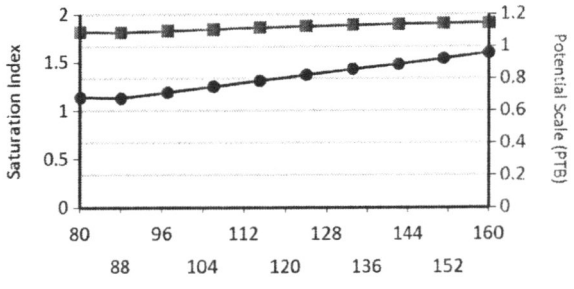
Barium Sulfate



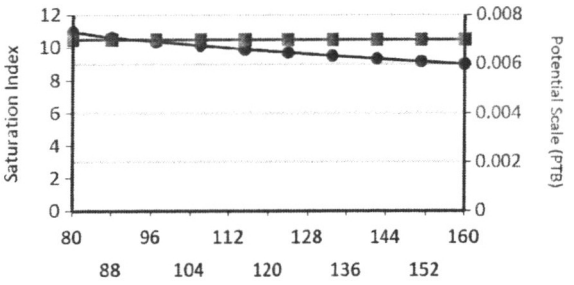
Iron Sulfide



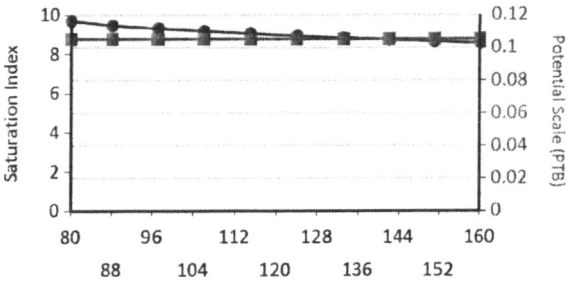
Iron Carbonate



Lead Sulfide



Zinc Sulfide



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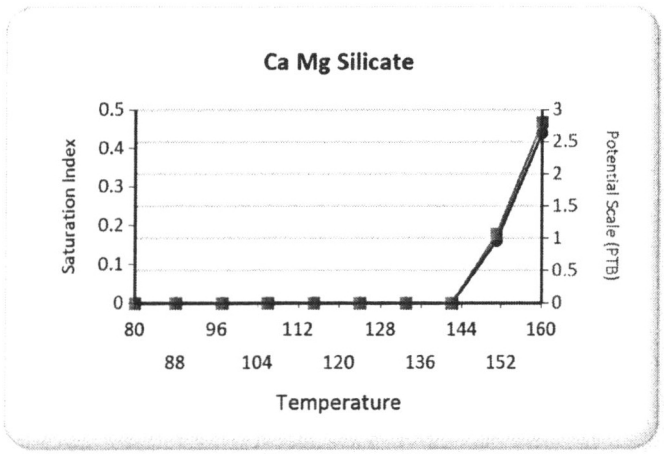
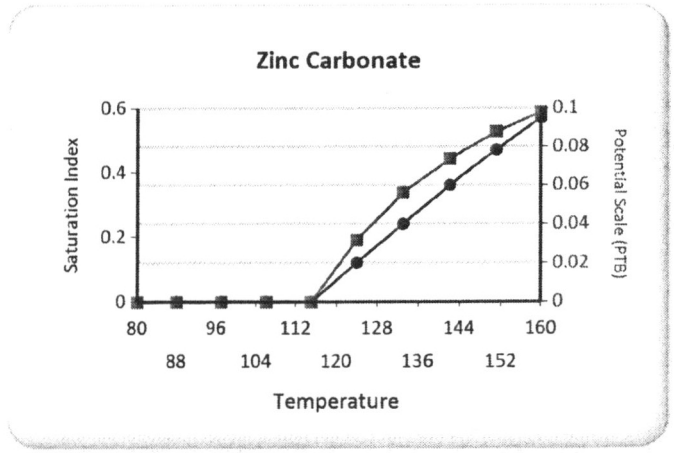
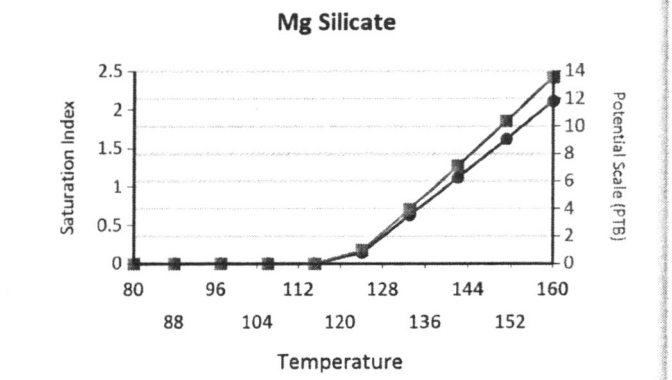
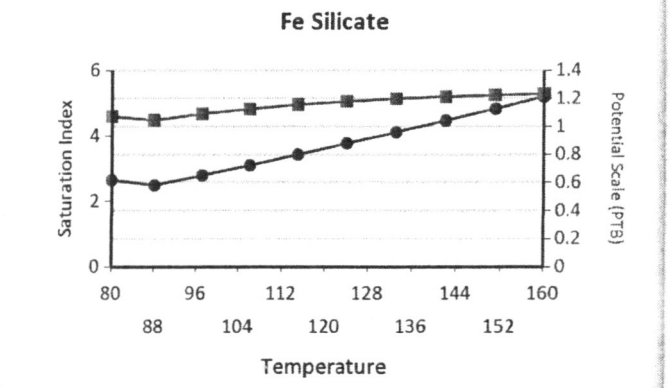
Water Analysis Report









OMB No. 2040-0042 Approval Expires 12/31/2011

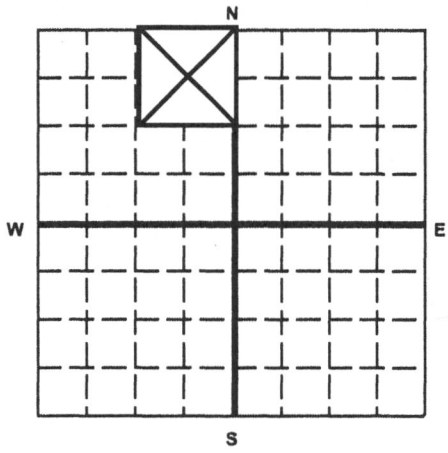
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-06701

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NW 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 614 ft. frm (N/S) N Line of quarter section
and 1983 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY
- ☐ Brine Disposal
- ☒ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-03

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1548	1617	632		0	0
February	13	1593	1622	579		0	0
March	13	1583	1632	481		0	0
April	13	1613	1623	855		0	0
May	13	1640	1647	787		0	0
June	13	1499	1676	618		0	0
July	13	1605	1641	504		0	0
August	13	1634	1643	593		0	0
September	13	1615	1641	370		0	0
October	13	1614	1622	456		0	0
November	13	1601	1638	334		0	0
December	13	1581	1590	365		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/11/2014

EPA Form 7520-11 (Rev. 12-08)

GREEN	BLUE	CBI
	2	

U2 Entered
Date 3/20/14
Initial DS

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Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**
Well Name: **UTE TRIBAL 18-03 INJ**
Sample Point: **Wellhead**
Sample Date: **1/8/2014**
Sample ID: **WA-263370**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/15/2014
System Temperature 1 (°F):	180
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	60
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.005
pH:	8.30
Calculated TDS (mg/L):	12361.60
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	2664.00	Chloride (Cl):	7000.00
Potassium (K):	127.00	Sulfate (SO_4):	69.00
Magnesium (Mg):	24.00	Bicarbonate (HCO_3):	2366.80
Calcium (Ca):	64.00	Carbonate (CO_3):	
Strontium (Sr):	6.00	Acetic Acid (CH_3COO)	
Barium (Ba):	14.00	Propionic Acid (C_2H_5COO)	
Iron (Fe):	1.00	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.00	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.00	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.12	Silica (SiO_2):	25.68

Notes:
B=6 Al=0 Li=1.5

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum $CaSO_4 \cdot 2H_2O$		Celestite $SrSO_4$		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.66	51.77	1.81	8.19	0.00	0.00	1.68	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	1.67	51.65	1.66	8.13	0.00	0.00	1.74	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	1.69	51.99	1.53	8.05	0.00	0.00	1.82	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	1.72	52.36	1.42	7.97	0.00	0.00	1.89	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	1.75	52.73	1.32	7.88	0.00	0.00	1.96	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	1.79	53.10	1.23	7.78	0.00	0.00	2.03	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.83	53.46	1.16	7.68	0.00	0.00	2.10	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.88	53.80	1.10	7.58	0.00	0.00	2.16	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.93	54.12	1.05	7.48	0.00	0.00	2.23	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.98	54.41	1.00	7.40	0.00	0.00	2.29	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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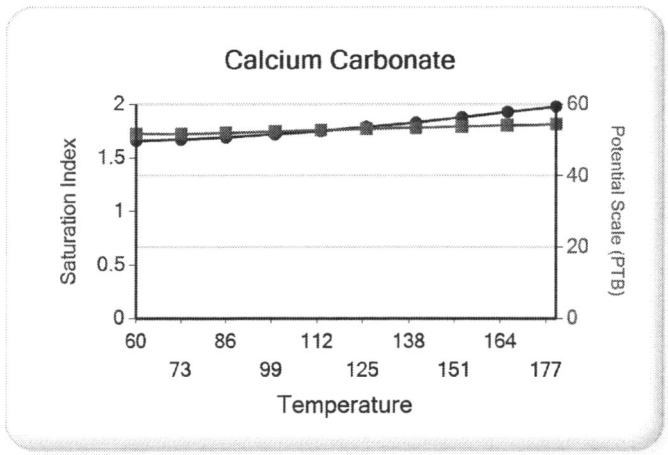
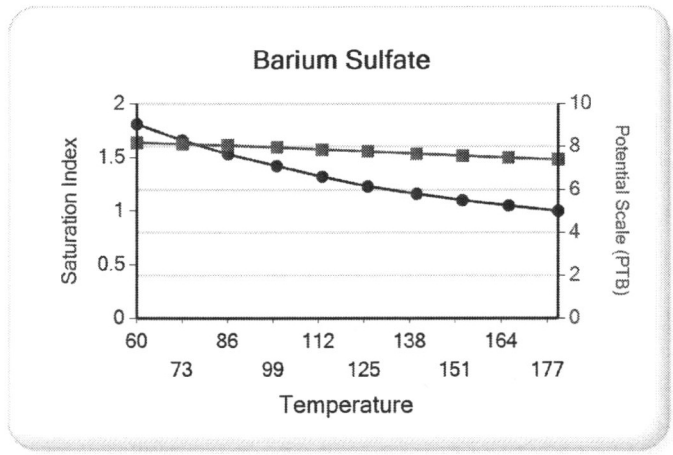
Water Analysis Report

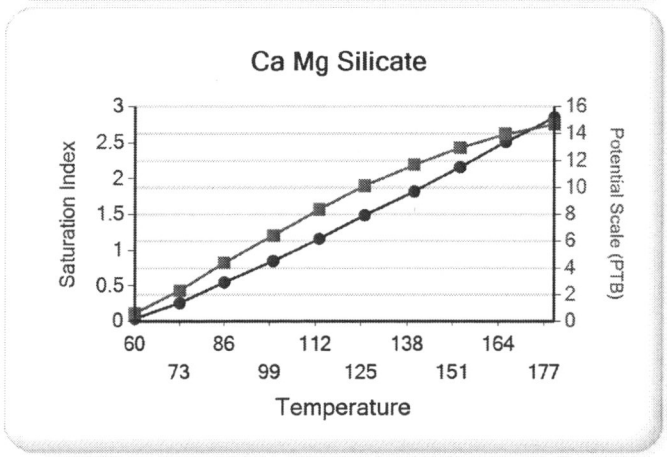
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	2.49	0.04	0.61	5.42	0.76
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	5.79	0.26	2.31	5.61	0.77
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	9.62	0.55	4.41	5.91	0.77
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86	13.34	0.85	6.45	6.23	0.77
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45	16.92	1.16	8.38	6.58	0.77
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.04	20.27	1.49	10.14	6.95	0.77
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.64	23.30	1.82	11.68	7.34	0.77
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.24	25.89	2.16	12.95	7.74	0.77
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.84	27.92	2.51	13.95	8.15	0.77
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.44	29.34	2.85	14.69	8.57	0.78

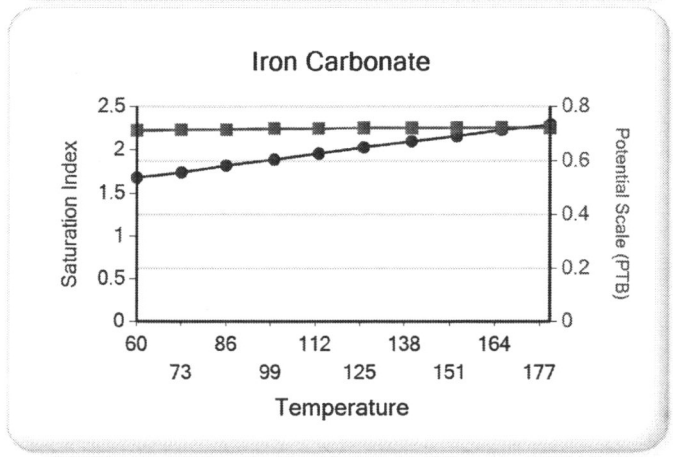
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









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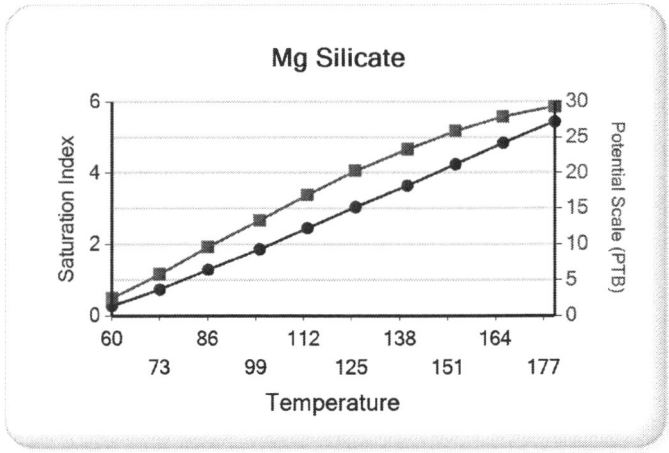
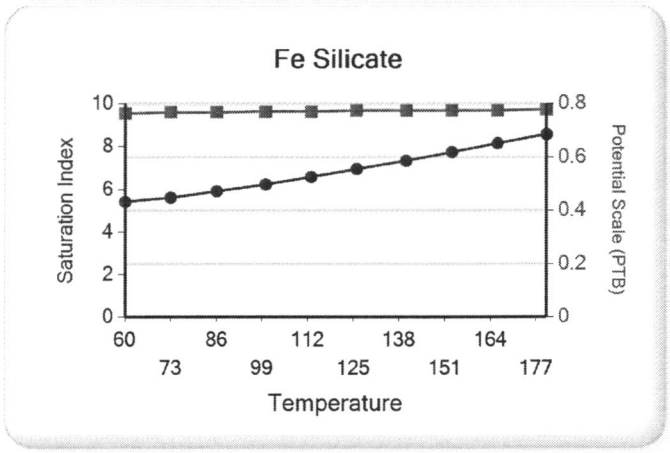
Water Analysis Report





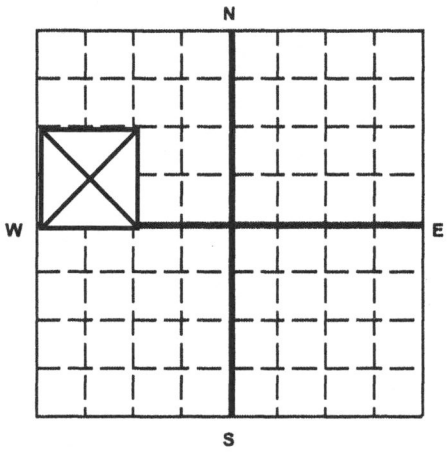
OMB No. 2040-0042 Approval Expires 12/31/2011

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04472

Surface Location Description

___ 1/4 of ___ 1/4 of SW 1/4 of NW 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1935 ft. frm (N/S) N Line of quarter section and 477 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY	TYPE OF PERMIT
☐ Brine Disposal	☐ Individual
☒ Enhanced Recovery	☒ Area
☐ Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-05

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1685	1826	2456		0	0
February	13	1774	1857	3844		0	0
March	13	1827	1853	4168		0	0
April	13	1848	1865	3947		0	0
May	13	1858	1878	3937		0	0
June	13	1786	1805	2828		0	0
July	13	1387	1809	2330		0	0
August	13	1804	1806	3645		0	0
September	13	1800	1835	2939		0	0
October	13	1832	1858	3206		0	0
November	13	1856	1866	3493		0	0
December	13	1854	1853	3603		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/11/2014

EPA Form 7520-11 (Rev. 12-08)

GREEN	BLUE	CBI
TAB	2	

U2 Entered
Date 3/20/14
Initial JB

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**
Well Name: **UTE TRIBAL 18-05 INJ**
Sample Point: **Wellhead**
Sample Date: **1/8/2014**
Sample ID: **WA-262973**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/15/2014
System Temperature 1 (°F):	180
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	60
System Pressure 2 (psig):	15
Calculated Density (g/ml):	0.999
pH:	7.60
Calculated TDS (mg/L):	2561.10
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H_2S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	668.07	Chloride (Cl):	1000.00
Potassium (K):	8.50	Sulfate (SO_4):	31.00
Magnesium (Mg):	55.00	Bicarbonate (HCO_3):	658.80
Calcium (Ca):	113.00	Carbonate (CO_3):	
Strontium (Sr):	3.40	Acetic Acid (CH_3COO)	
Barium (Ba):	0.63	Propionic Acid (C_2H_5COO)	
Iron (Fe):	2.90	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.30	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.05	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.19	Silica (SiO_2):	19.26

Notes:
B=.8 Al=0 Li=.07

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum $CaSO_4 \cdot 2H_2O$		Celestite $SrSO_4$		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.77	33.57	0.59	0.28	0.00	0.00	0.92	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	0.75	32.50	0.44	0.24	0.00	0.00	0.96	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	0.80	35.01	0.31	0.19	0.00	0.00	1.06	1.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	0.85	37.87	0.20	0.14	0.00	0.00	1.16	1.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	0.91	41.04	0.11	0.08	0.00	0.00	1.26	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	0.98	44.49	0.03	0.02	0.00	0.00	1.37	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.06	48.16	0.00	0.00	0.00	0.00	1.47	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.13	52.00	0.00	0.00	0.00	0.00	1.57	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.21	55.97	0.00	0.00	0.00	0.00	1.67	2.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.30	60.01	0.00	0.00	0.00	0.00	1.77	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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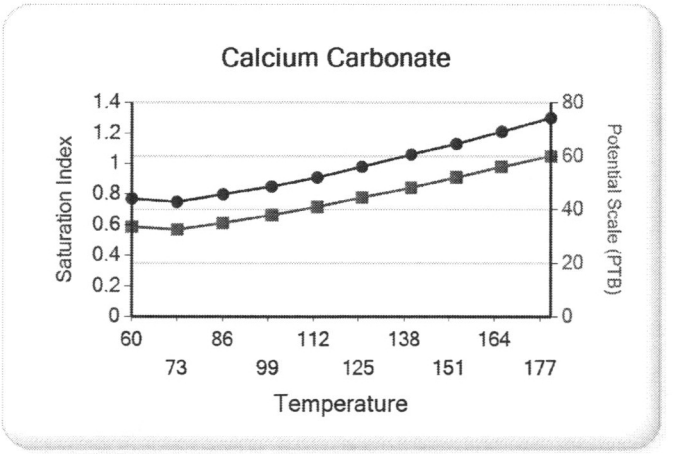
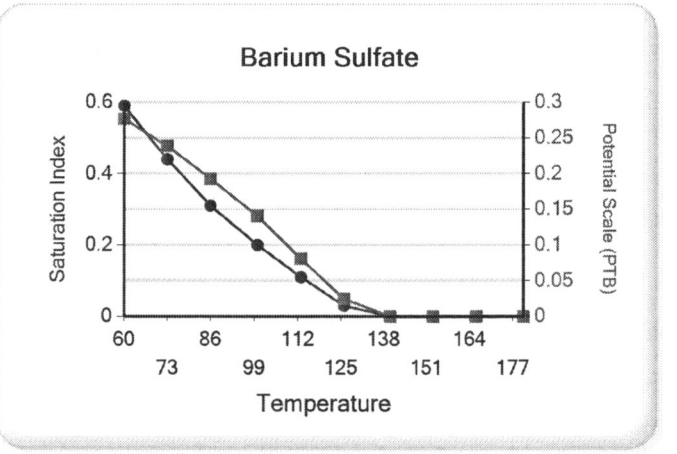
Water Analysis Report

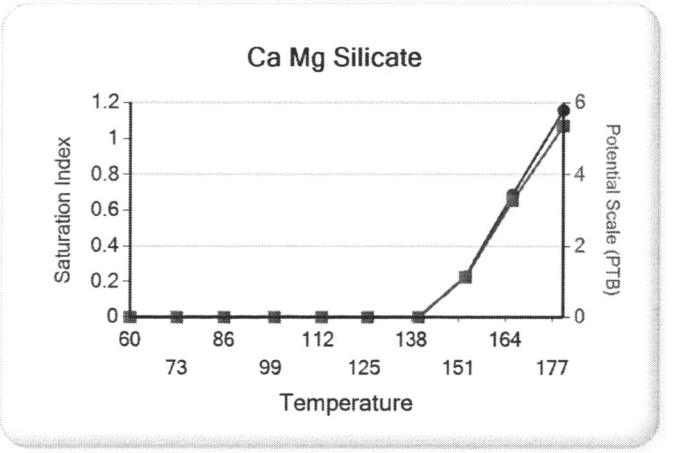
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	1.58
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	1.60
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45	1.78
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95	1.92
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.48	2.03
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.06	0.00	0.00	0.10	0.50	0.00	0.00	4.03	2.11
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.11	0.00	0.00	0.87	4.19	0.00	0.00	4.61	2.16
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.14	0.00	0.00	1.65	8.23	0.23	1.13	5.19	2.19
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.16	0.00	0.00	2.42	12.35	0.69	3.28	5.79	2.22
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.17	0.00	0.00	3.19	16.17	1.16	5.36	6.40	2.23

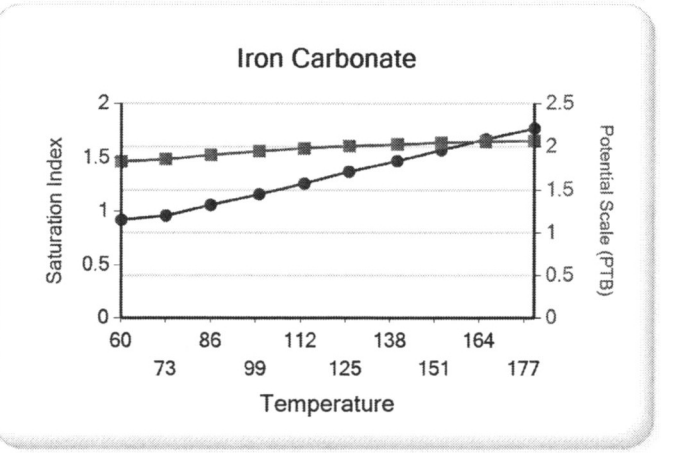
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









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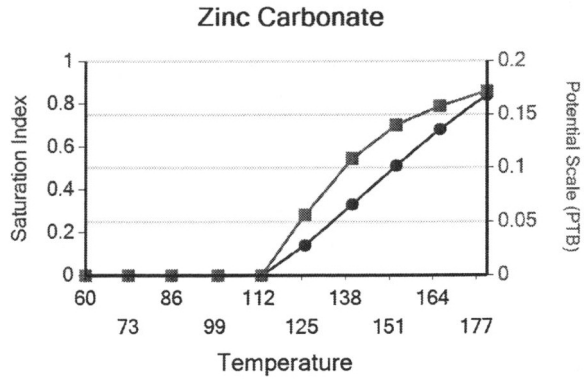
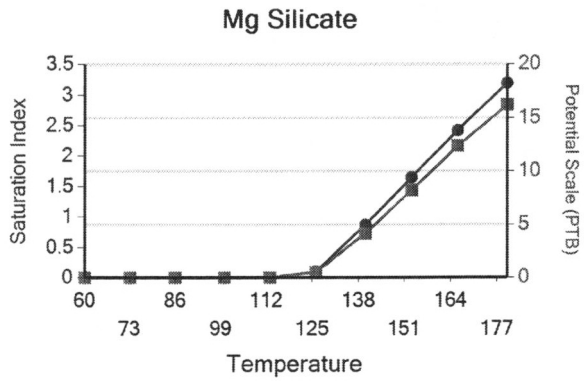
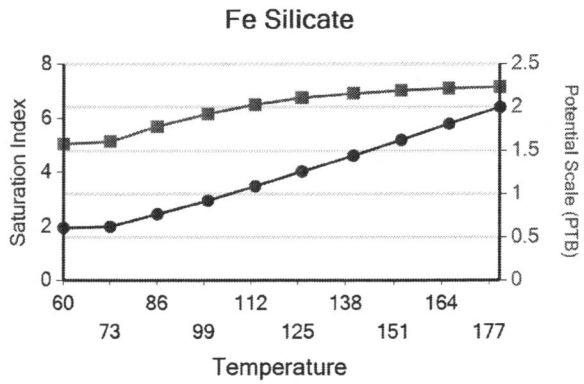
A HALLIBURTON SERVICE

Water Analysis Report







Petroglyph Operating Company, Inc.
Injection Pressure Cause and Mitigation Measures
2013 EPA Annual Injection Report

Well Name: Ute Tribal 18-03

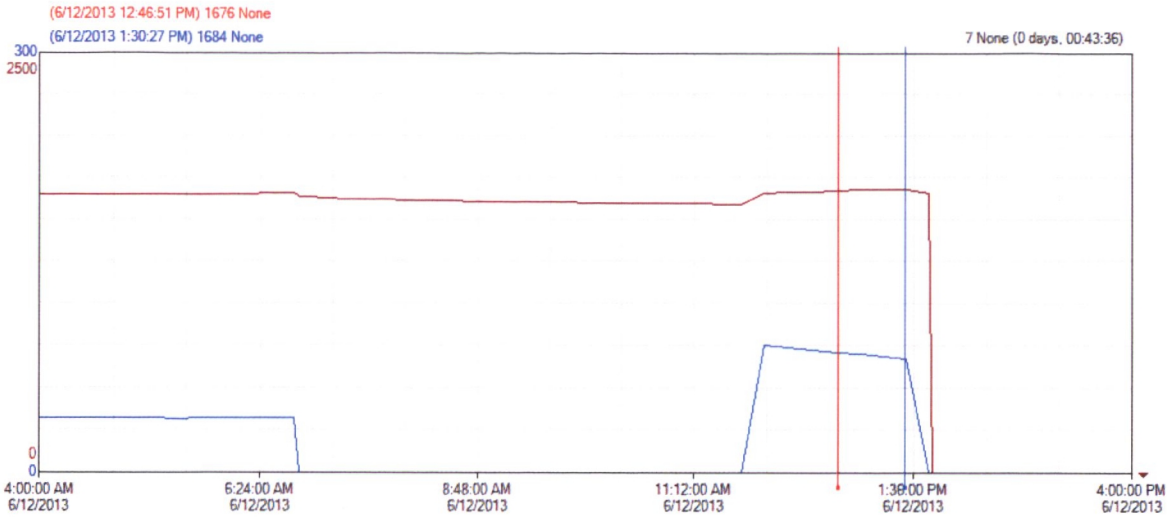
UIC Permit Number: UT2736-06701

API Number: 43-013-31528

Cause of Pressure and Mitigation Measures:
On 6/12/2013 at 6:40 A.M. the rate of injection on this well was reduced. This reduction in injection rate was too great and the operator went back to the well and tried to set the well to a slightly higher rate. However, the second injection rate change was far too large and resulted in the well going over its maximum allowable injection pressure for 45 Minutes. On 6/12/2013 from 12:46 P.M. to 1:30 P.M. we injected approximately 43 Bbls of fluid at an average pressure of 1680 Psi. At 1:30 P.M. the well was shut in and injection ceased. The next day injection resumed and no further incidents of high pressure occurred.

PETROGLYPH

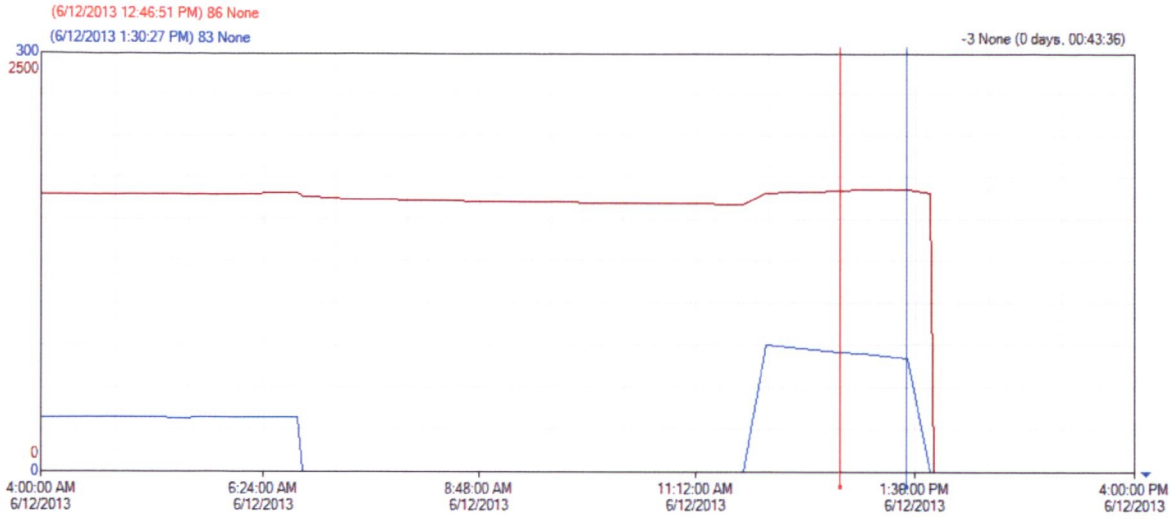
UT 18-03 PSI & Vol Trend 2013-6-12



PEI-SCADA02:01_18_03000_Injection\Well.02_Water_4_Press_Injection [BestFit - 00 00:04:06.522]

Tag Name	Description	Number	Server	Color	Units	Minimum	Maximum	IO Address	Time Offset	Source Tag	Source Server	V.
01_18_030...		1	PEI-SCA...		None	0	300	\\PEI-SCADA02\InSQL...	0:00:00.000			8
01_18_030...		2	PEI-SCA...		None	0	2500	\\PEI-SCADA02\InSQL...	0:00:00.000			1

UT 18-03 PSI & Vol Trend 2013-6-12



PEI-SCADA02:01_18_03000_InjectionWell.02_Water_1_Flow_Injection [BestFit - 00 00:04:06.522]

Tag Name	Description	Number	Server	Color	Units	Minimum	Maximum	IO Address	Time Offset	Source Tag	Source Server	V.
☑ 01_18_030...		1	PEI-SCA...		None	0	300	\\PEI-SCADA02\InSQL...	0:00:00.000			8
☑ 01_18_030...		2	PEI-SCA...		None	0	2500	\\PEI-SCADA02\InSQL...	0:00:00.000			1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

MAR 10 2006

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Steve Wall, District Manager
Petroglyph Energy, Inc.
4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

RE: Additional Well to Antelope Creek Area Permit
UIC Permit No. UT20736-00000
Well ID: UT20736-06701
Ute Tribal No.18-03, Duchesne County, Utah

Dear Mr. Wall:

Thank you for submitting information pertaining to the newly constructed or converted Ute Tribal 18-03 enhanced recovery injection well to the Region 8 Ground Water Program office of the Environmental Protection Agency (EPA). The "Prior To Commencing Injection" requirements for the Ute Tribal 18-06 injection well required well owner and operator Petroglyph Energy, Inc. to submit the following information to the Director:

1. A successful mechanical integrity test (MIT) demonstrating Part I Internal MI,
2. Pore pressure calculation of the proposed injection zone, and
3. completed EPA Form No. 7520-12.

All required information has been submitted, and has been reviewed and approved by the EPA. Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal 18-03 enhanced recovery injection well under the conditions of the Authorization for Additional Well and UIC Area Permit UT20736-00000 as modified.

As of this approval, responsibility for permit compliance and enforcement is transferred to the Region 8 UIC Technical Enforcement Program office. Therefore, please direct all future notification, reporting, monitoring and compliance correspondence to the following address, referencing your well and UIC Permit number on all correspondence regarding this well.

Technical Enforcement Program - UIC
U.S. EPA Region 8, Mail Code 8ENF-UFO
999 18th Street, Suite 300
Denver, Colorado 80202-2466

The Director has determined that the maximum allowable surface injection pressure (MAIP) for the Ute Tribal 18-03 is 1675 psig. Please be reminded that it is the responsibility of the owner/operator to be aware of, and to comply with, all conditions of Authorization for Additional Well UT20736-06701 and EPA UIC Area Permit UT20736-00000 and relevant modifications as issued.

If you have any questions regarding this Authorization, please call Tricia Pfeiffer of my staff at (303) 312-6271. For questions regarding notification, testing, monitoring, reporting or other Permit requirements, the UIC Technical Enforcement Program may be reached by calling (800) 227-8917.

Sincerely,

Tracy M. Eagle
Director
Ground Water Program

cc: Maxine Natchees, Acting Chairperson
Uintah & Ouray Business Committee
Ute Indian Tribe
P.O. Box 190
Fort Duchesne, UT 84026

Chester Mills, Superintendent
BIA - Uintah & Ouray Indian Agency
P.O. Box 130
Fort Duchesne, UT 84026

Mr. Kenneth Smith
Executive Vice President and Chief Operating Officer
Petroglyph Energy, Inc.
555 S. Cole Blvd
Boise, ID 83709

S. Elaine Willie
Environmental Coordinator
Ute Indian Tribe
P.O. Box 460
Fort Duchesne, UT 84026

Gil Hunt
Technical Services Manager
Utah Division of Oil, Gas, and Mining
1594 West North Temple - Suite 1220
Salt Lake City, UT 84114-5801

Kirk Fleetwood, PE
BLM - Vernal District
170 South 500 East
Vernal, UT 84078

bcc w/o enclosures:

Barbara Conklin, 8TAP
Nathan Wiser, 8 ENF-UFO

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: UT20736-06701
-06699
-06678

Steve Wall, District Manager
Petroglyph Energy, Inc.
4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

ENF L ~~E~~ L

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Dana Tillman ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery 3-13-06

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

RECEIVED
MAR 15 2006
EPA Regi... Grand W... Region...

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7001 0320 0005 9389 6270

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

5

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	MAR 10 2006
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

7001 0320 0005 9389 6270

Sent To Steve Wall, District Manager
Street, Apt. No.; or PO Box No. Petroglyph Energy, Inc.
City, State, ZIP+4 4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

PS Form 3800, January 2001 See Reverse for Instructions

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

MAR 10 2006

Ref: 8P-W-GW

CONCURRENCE COPY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Steve Wall, District Manager
Petroglyph Energy, Inc.
4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

RE: Additional Well to Antelope Creek Area Permit
UIC Permit No. UT20736-00000
Well ID: UT20736-06701
Ute Tribal No.18-03, Duchesne County, Utah

Dear Mr. Wall:

Thank you for submitting information pertaining to the newly constructed or converted Ute Tribal 18-03 enhanced recovery injection well to the Region 8 Ground Water Program office of the Environmental Protection Agency (EPA). The "Prior To Commencing Injection" requirements for the Ute Tribal 18-06 injection well required well owner and operator Petroglyph Energy, Inc. to submit the following information to the Director:

1. A successful mechanical integrity test (MIT) demonstrating Part I Internal MI,
2. Pore pressure calculation of the proposed injection zone, and
3. completed EPA Form No. 7520-12.

All required information has been submitted, and has been reviewed and approved by the EPA. Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal 18-03 enhanced recovery injection well under the conditions of the Authorization for Additional Well and UIC Area Permit UT20736-00000 as modified.

8P-W-GW 3/2/06

SENFUIO N. Wise 3-3-06

3.8.06

As of this approval, responsibility for permit compliance and enforcement is transferred to the Region 8 UIC Technical Enforcement Program office. Therefore, please direct all future notification, reporting, monitoring and compliance correspondence to the following address, referencing your well and UIC Permit number on all correspondence regarding this well.

Technical Enforcement Program - UIC
U.S. EPA Region 8, Mail Code 8ENF-UFO
999 18th Street, Suite 300
Denver, Colorado 80202-2466

The Director has determined that the maximum allowable surface injection pressure (MAIP) for the Ute Tribal 18-03 is **1675** psig. Please be reminded that it is the responsibility of the owner/operator to be aware of, and to comply with, all conditions of Authorization for Additional Well UT20736-06701 and EPA UIC Area Permit UT20736-00000 and relevant modifications as issued.

If you have any questions regarding this Authorization, please call Tricia Pfeiffer of my staff at (303) 312-6271. For questions regarding notification, testing, monitoring, reporting or other Permit requirements, the UIC Technical Enforcement Program may be reached by calling (800) 227-8917.

Sincerely,

Tracy M. Eagle
Director
Ground Water Program

cc: Maxine Natchees, Chairperson (Acting)
Uintah & Ouray Business Committee
Ute Indian Tribe
P.O. Box 190
Fort Duchesne, UT 84026

Chester Mills, Superintendent
BIA - Uintah & Ouray Indian Agency
P.O. Box 130
Fort Duchesne, UT 84026

Mr. Kenneth Smith
Executive Vice President and Chief Operating Officer
Petroglyph Energy, Inc.
555 S. Cole Blvd
Boise, ID 83709

5. Elaine Willie
Environmental Coordinator
Ute Indian Tribe
P.O. Box 460
Fort Duchesne, UT 84026

Gil Hunt
Technical Services Manager
Utah Division of Oil, Gas, and Mining
1594 West North Temple - Suite 1220
Salt Lake City, UT 84114-5801

Kirk Fleetwood, PE
BLM - Vernal District
170 South 500 East
Vernal, UT 84078

bcc w/o enclosures:

Barbara Conklin, 8TAP
Nathan Wiser, 8 ENF-UFO

UIC Program Action : Auth. to Inject

Permit Number: UT 20736-06701 . **Well Name:** Ute Tribal 18-03 .

Form or **Non-Form** **Operator:** Petroglyph Energy, Inc. .

		Mailcode	Initials	Date
Writer: T. Pfeiffer.	phone: 6271 .	8P-W-GW	JP	3/2/06
UIC Review	☒ DWJ ☒ CT ☐ NW (8ENF-UFO)	8P-W-GW	NW	3/3/06
~~B Thomas~~, Admin Karen Bartholow	proof w/ edits	8P-W-GW	KB	3/7
T Eagle, Dir, GWP	❑ **concur** ❑ **signature**	8P-W-GW		3/8
~~*L Johnson, Admin*~~	~~*proof*~~	8P-W		
D Thomas, Dir, WP	❑ **concur** ❑ **signature**	8P-W		
~~*M Brennan, Admin*~~	~~*proof*~~	8-P		
~~**S Tuber, ARA, OPRA**~~	❑ **signature**	8-P		
K Bartholow	**Data Entry** & date stamp & mail original letter & copy of docs to Addressee	8P-W-GW	KB	3/10
~~B Thomas~~, Admin Karen Bartholow Writer T. Pfeiffer	mail copies to CC's File documents	8P-W-GW	KB	3/10
		8P-W-GW		

LEFT SIDE
- ➤ Concurrence Copy
- ➤ Request Letter & relevant information
- ➤

RIGHT SIDE
- ➤ Response Letter
- ➤
- ➤
- ➤

COMMENTS:

Karen - Let Tricia know before mailing

Corrections Made JP 3/7/06

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

AUTHORIZATION FOR ADDITIONAL WELL

UIC Area Permit No: UT20736-00000

The Antelope Creek Waterflood Final UIC Area Permit No. UT20736-00000, effective July 12, 1994, authorizes injection for the purpose of enhanced oil recovery into multiple lenticular sand units which are distributed throughout the lower portion of the Green River Formation. On December 27, 2004, the permittee provided notice to the Director concerning the following additional enhanced recovery injection well:

Well Name:	**Ute Tribal 18-03**
EPA Well ID Number:	**UT20736-06701**
Location:	614 ft FNL & 1983 ft FWL NE NW Sec. 18 - T5S - R3W Duchesne County, Utah.

Pursuant to 40 CFR §144.33, Area UIC Permit No. UT20736-00000 authorizes the permittee to construct and operate, convert, or plug and abandon additional enhanced recovery injection wells within the area permit. This well was determined to satisfy additional well criteria required by the permit.

This well is subject to all provisions of UIC Area Permit No. UT20736-00000, as modified and as specified in the Well Specific Requirements detailed below. This Authorization shall expire one year after the Effective Date unless the permittee has converted the well to injection or submits a written request to extend this Authorization prior to the expiration date.

This Authorization is effective upon signature.

Date: JAN 13 2006

for **Stephen S. Tuber**
*Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

** The person holding this title is referred to as the Director throughout the Permit and Authorization*

WELL-SPECIFIC REQUIREMENTS

Well Name: **Ute Tribal 18-03**
EPA Well ID Number: **UT20736-06701**

Prior to commencing injection operations, the permittee shall submit the following information and receive written Authority to Inject from the Director:

1. a successful Part I (Internal) Mechanical Integrity test (MIT);
2. pore pressure calculation of the proposed injection zone; and
3. completed Well Rework Record EPA Form No. 7520-12 and schematic diagram.

Approved Injection Zone: Injection is approved between the base of the Green River A Lime Marker, at approximately 3902 ft, to the top of the Basal Carbonate, at approximately 5914 ft.

Maximum Allowable Injection Pressure (MAIP): The initial MAIP is **1675 psig,** based on the following calculation:

MAIP = [FG - (0.433)(SG)] * D, where
FG = 0.80 psi/ft SG = 1.002 D = **4580 ft** (top perforation depth KB)
MAIP = 1675 psi

UIC Area Permit No. UT20736-00000 also provides the opportunity for the permittee to request a change of the MAIP based upon results of a step rate test that demonstrates the formation breakdown pressure will not be exceeded.

Well Construction and Corrective Action: ***No Corrective Action is required*** Based on review of well construction and cementing records, including CBL, well construction is considered adequate to prevent fluid movement out of the injection zone and into USDWs.

Tubing and Packer: 2-3/8" or similar size injection tubing is approved; the packer shall be set at a depth no more than 100 ft above the top perforation.

Corrective Action for Wells in Area of Review: ***No Corrective Action is required.*** The following wells that penetrate the confining zone are within or proximate to a 1/4 mile radius around the Ute Tribal No. 18-03 were evaluated to determine if any corrective action is necessary to prevent fluid movement into USDWs:

Well: Ute Tribal No. 07-14 ● Location: SE SW Sec. 07 - T5S - R3W
Well: Ute Tribal No. 18-04E ● Location: NW NW Sec. 18 - T5S - R3W

Demonstration of Mechanical Integrity: A successful demonstration of Part I (Internal) Mechanical Integrity using a standard Casing-Tubing pressure test is required prior to injection and at least once every five years thereafter. EPA reviewed the cement bond log and determined the cement will provide an effective barrier to significant upward movement of fluids through vertical channels adjacent to the well bore pursuant to 40 CFR 146.8 (a)(2). Therefore, further demonstration of Part II (External) Mechanical Integrity is not required at this time.

Demonstration of Financial Responsibility: The applicant has demonstrated financial responsibility in the amount of $15,000 via a Surety Bond that has been reviewed and approved by the EPA.

Plugging and Abandonment: The well shall be plugged in a manner that isolates the injection zone and prevents movement of fluids into or between USDWs. Tubing, packers, and any downhole apparatus shall be removed. Class A, C, G, and H cements, with additives such as accelerators and retarders that control or enhance cement properties, may be used for plugs; however, volume extending additives and gel cements are not approved for plug use. Plug placement shall be verified by tagging. Plugging gel of at least 9.2 lb/gal shall be placed between all plugs. A minimum 50 ft surface plug shall be set inside and outside of the surface casing to seal pathways for fluid migration into the subsurface. Within sixty (60) days after plugging the owner or operator shall submit Plugging Record (EPA Form 7520-13) to the Director. The Plugging Record must be certified as accurate and complete by the person responsible for the plugging operation. At a minimum, the following plugs are required:

PLUG NO. 1: Set a cast iron bridge plug (CIBP) no more than 50 ft above the top perforation at 4580 ft with a minimum 20 ft cement plug on top of the CIBP.

PLUG NO. 2: Set a minimum 200 ft cement plug inside of the 5-1/2" casing across the Trona Zone and the Mahogany Shale, between approximately 2641 ft to 2841 ft.

PLUG NO. 3: Set a minimum 200 ft cement plug inside of the 5-1/2" casing and on the backside of the 5-1/2" casing across the base of the USDW, between approximately 1040 ft to 1240 ft. This plug fulfills the Utah BLM P&A requirement.

PLUG NO. 4: Set a minimum 50 ft cement plug on the backside of the 5-1/2" casing, across the surface casing shoe at 431 ft (unless pre-existing backside cement precludes cement-squeezing this interval.)

PLUG NO. 5: Set a cement plug inside of the 5-1/2" casing, from at least 406 ft to 456 ft.

PLUG NO. 6: Set a cement plug on the backside of the 5-1/2" casing, from surface to a depth of at least 50 ft.

PLUG NO. 7: Set a cement plug inside of the 5-1/2" casing from surface to a depth of at least 50 ft.

Cut off surface and 5-1/2" casing at least 4 ft below ground level and set P&A marker; submit Sundry Notices and all necessary data as required by the EPA and other regulatory agencies.

Reporting of Noncompliance:

(a) Anticipated Noncompliance. The operator shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(b) Compliance Schedules. Reports of compliance or noncompliance with, or any progress on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than thirty (30) days following each schedule date.

(c) Written Notice of any noncompliance which may endanger health or the environment shall be reported to the Director within five (5) days of the time the operator becomes aware of the noncompliance. The written notice shall contain a description of the noncompliance and its cause; the period of noncompliance including dates and times; if the noncompliance has not been corrected the anticipated time it is expected to continue; and steps taken or planned to prevent or reduce recurrence of the noncompliance.

Twenty-Four Hour Noncompliance Reporting:

The operator shall report to the Director any noncompliance which may endanger health or environment. Information shall be provided, either orally or by leaving a message, within twenty-four (24) hours from the time the operator becomes aware of the circumstances by telephoning 1.800.227-8917 and asking for the EPA Region 8 UIC Program Compliance and Enforcement Director, or by contacting the Region 8 Emergency Operations Center at 303.293.1788 if calling from outside EPA Region 8. The following information shall be included in the verbal report:

(a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW.

(b) Any noncompliance with a Permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

Oil Spill and Chemical Release Reporting:

The operator shall comply with all other reporting requirements related to oil spills and chemical releases or other potential impacts to human health or the environment by contacting the **National Response Center (NRC) 1.800.424.8802 or 202.267.2675,** or through the **NRC website at http://www.nrc.uscg.mil/index.htm.**

Other Noncompliance:

The operator shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted.

Other Information:

Where the operator becomes aware that he failed to submit any relevant facts in the Permit application, or submitted incorrect information in a Permit application, or in any report to the Director, the operator shall submit such correct facts or information within two (2) weeks of the time such information became known to him.

WELL-SPECIFIC CONSIDERATIONS

Well Name: **Ute Tribal 18-03**
EPA Well ID Number: **UT20736-00000**

Underground Sources of Drinking Water (USDWs): USDWs in the Antelope Creek Waterflood area generally may occur within the Uinta Formation, which extends from the surface to the top of the Green River Formation at approximately 1490 ft. According to *"Base of Moderately Saline Ground Water in the Uinta Basin, Utah, State of Utah Technical Publication No. 92,"* the base of moderately saline ground water may be found at approximately 52 ft below ground surface at this well location. Based on information reported by Petroglyph, the bas of a USDW was found at 1140 ft KB in the Ute Tribal 18-03. Based on analysis of the submitted cement bond log (CBL) the top of casing cement in this well is at approximately 1910 ft (KB).

Confining Zone: The Confining Zone at this location is approximately 214 ft of interbedded limestone and shale between the depths of 3688 ft to 3902 ft (KB) which directly overlies the Injection Zone, based on correlation to the Antelope Creek Ute Tribal 04-03 well Type Log. Additional impermeable lacustrine shale beds above the Confining Zone provide for further protection for any overlying USDW.

Injection Zone: The Injection Zone at this well location is an approximately 2012 ft section of multiple lenticular sand units interbedded with shale, marlstone and limestone from the base of the Confining Zone at 3902 ft (KB) to the top of the Basal Carbonate Formation at 5914 ft (KB), based on correlation to the Antelope Creek Ute Tribal 04-03 well Type Log.

Well Construction: The CBL shows more than 214 ft of 80% or greater bond across the confining zone, approximately 3688 ft to 3902 ft..

Surface casing:	8-5/8" casing is set at 431 ft (KB) in a 12-1/4" hole, using 250 sacks cement circulated to the surface.
Longstring casing:	5-1/2" casing is set at 6280 ft (KB) in a 7-7/8" 6280 ft Total Depth hole with a plugged back total depth (PBTD) of 6249 ft, cemented with 435 sacks cement. Top of Cement (TOC): 1910 ft (KB) CBL.
Perforations:	top perforation: **4580 ft** Bottom perforation: **5568 ft**

Wells in Area of Review (AOR): Construction and cementing records, including cement bond logs (CBL) as available, for two wells in the 1/4 mile AOR that penetrated the confining zone were reviewed and found adequate to prevent fluid movement out of the injection zone and into USDWs.

Well: Ute Tribal No. 07-14 ●	Casing Cement top: circulated to surface
Well: Ute Tribal No. 18-04E ●	Casing Cement top: 1537 ft (CBL)